Biospheric Sciences Branch Highlights for September - October 2000

** Landsat Project Science Office provides image of North Carolina coast for the cover of NCCF's Sixth Annual State of the Coast Report

The North Carolina Coastal Federation (NCCF), a nonprofit 501(c)3 organization which does not engage in any partisan political activity, plans to use the Landsat natural color rendition of the North Carolina coast following Hurricane Floyd as the cover of their annual report. This will be NCCF's Sixth Annual State of the Coast Report.

We were contacted by Jim Stephenson of the NCCF about the use of the imagery and we encouraged it, only asking that they acknowledge the LPSO, NASA and USGS for providing the imagery.

Descriptions from inside cover of the report:

North Carolina Coastal Federation Citizens Working Together for a Healthy Coastal Environment

The North Carolina Coastal Federation is the state's largest non-profit organization working to restore and protect the coast. Formed in 1982, the NCCF has grown to serve more than 5,000 members and 200 member groups. The NCCF focuses on three main areas of work including habitat restoration and protection, environmental education, and the encouragement of sound environmental programs and their enforcement.

NCCF's Sixth Annual State of the Coast Report

The purpose of the State of the Coast Report is to present a straight forward look at the issues shaping our coastal environment. There are no hidden agendas - just a sincere effort to present the best information from those most qualified in the field. To take it a step further, we offer possible solutions to some of the most challenging problems. The opinions expressed in the State of the Coast Report represent views of the North Carolina Coastal Federation.

The topics in the report will closely resemble the agenda for their upcoming summit which can also be viewed on their web site at:
http://www.nccoast.org/SOC.html

** SAFARI 2000 Dry/Fire Season Campaign Completed

The SAFARI 2000 experiment (Southern African Regional Science Initiative) completed its third Intensive Field Campaign on 24 September 2000. Several

Code 923 personnel including Jeff Privette and Brent Holben participated in this campaign. In addition to various ground-based efforts, the campaign was highlighted by an aggressive aircraft sampling effort including NASA's ER-2 (20 missions; 120 flight hours, led by S. Platnick, Code 913), the University of Washington's CV580 (120 hours), two South African Aerocommanders (185 hours total), and the UK Meterological Office's C130 (72 hours). Coordinated ground, air and space measurements were conducted over four prescribed burns, with intensive airborne remote sensing of 14 other prescribed burns. EOS Terra land validation efforts were focused primarily at a woodland site in western Zambia (with a 30 m tower) and a savanna site in eastern South Africa (20 m tower) (J. Privette). The latter site burned during the campaign, allowing a before/during/after analysis of energy and carbon fluxes. Goddard's AERONET (B. Holben) substantially augmented its existing in-region sunphotometer network during the period, and an EOS Validation project (SAVE/SHADOZ, A. Thompson, Code 916) conducted an ozonesonde campaign, providing especially compelling results. An innovative geospatial WWW site served from Univ. of Witwatersrand, Johannesburg, South Africa (http://www.safari2000.org) allowed near real-time weather, aerosol and flight image analysis and data retrieval. SAFARI 2000 requires investigators to adhere to a rapid data release policy. These data are available through the Oak Ridge DAAC and a mirror site at Univ. of Witwatersrand. To facilitate rapid distribution to investigators without stable WWW access, Goddard staff are compiling CDROMs. The first will be available in about December 2000. SAFARI 2000 is led by Drs. Robert Swap (Univ. of Virginia) and Harold Annegarn (Univ. of Witwatersrand).

Two online media articles on SAFARI 2000 by independent news sources are currently on the Web. One is on National Geographic.com and another on the Philadelphia Inquirer Magazine at web.philly.com. You can check out these articles at the web sites below.

http://web.philly.com/content/inquirer/2000/09/04/magazine/NASA04.htm_
http://www.safari2000.org/inferno_3019.asp (a Nat'l Geographic page)

**** EOS Prototype Validation Exercise (PROVE) Special Issue of RSE**

The current issue of Remote Sensing of Environment (October, 2000) is dedicated to the PROVE field campaign conducted at the Jornada LTER site (operated by USDA-ARS) in May 1997. The MODLAND team initiated PROVE to 1) gain experience in the collection and use of field data, 2) develop coordination, measurement and data archiving protocols, and 3) compile a synoptic land and atmospheric data set for testing Terra algorithms. The campaign was conducted jointly by the MODIS, Landsat 7, ASTER, and MISR teams together with USDA, AERONET and university scientists. It featured an over-flight by NASA's ER-2 among other aircraft. Satellite imagery from AVHRR, POLDER, Landsat and GOES were also acquired. The special issue contains 12 articles describing the field data, analyses and comparisons with remote sensing data. The issue was co-edited by Code 923's Jeff Privette and K. Fred Huemmrich.

**** Irons attends Landsat Ground Station Operations Working Group Meeting in China**

Dr. Jim Irons attended the 29th meeting of the Landsat Ground Station Operations Working Group in Beijing, China, on September 17 - 23. The meeting was hosted by the China Remote Sensing Ground Station. Irons gave a presentation on the Landsat Data Continuity Mission.

**** Global Observations of Forest Cover (GOFC) Workshop in Novosibirsk, Russia**

Don Deering, Jon Ranson and Guoqing Sun (all of Code 923) participated in the Global Observations of Forest Cover (GOFC) - Boreal Forests Workshop in Novosibirsk, Russia (the new official Capitol of Siberia) on Aug. 28 - Sept. 1, 2000. GOFC is a panel of the Global Terrestrial Observing System, originally developed as a pilot project by the Committee on Earth Observation Satellites, as part of their Integrated Global Observing Strategy. GOFC's overall objective is to improve the quality and availability of satellite observations at regional and global scales and to produce useful, timely and validated information products from these data together with in-situ observations for a wide variety of users.

Dr. Deering presented an overview of forest cover and land surface condition monitoring capabilities from satellite, which included some discussion of his currently active research in Siberian boreal forests near Krasnoyarsk on forest fire succession. He also gave a presentation on the major international LBA scientific project, currently underway in the Amazon, as a potential organizational model for a future large international Earth sciences research program in Russia.

Dr. Ranson presented a poster with Russian scientist, Dr. V.I. Kharuk showing some of the vast areas of Siberian forests damaged by fires, insects, pollution and mineral exploitation.

At the suggestion of NASA HQ program management, at the workshop Dr. Deering initiated a "test bed" networking task that is intended to link several Novosibirsk and Krasnoyarsk institutes and their respective satellite receiving stations for the purposes of improved communications and data sharing for research and international science planning activities. The eventual goal will be to enable similar networking for several Russian science institutes to facilitate scientific programs, including the GOFC. This effort will also directly benefit the on-going NASA-sponsored research projects of Ranson and Deering.

Results from the workshop will be formally published on the GOFC Web site following final drafting and review, and regional workshops will be planned by a newly established steering committee for GOFC - Boreal Forests, with the

first one scheduled for St. Petersburg in the spring of 2001.

**** Williams travels to Amazon to observe LBA-Ecology Support Infrastructure**

Darrel Williams, Head, Biospheric Sciences Branch (Code 923), traveled to the Amazon region of Brazil Sept. 25 - 29, along with Don Deering, the LBA-Ecology Project Manager. The primary purpose of the trip from Williams' perspective was to observe some of the support infrastructure that has been put in place in the Amazon region to support NASA-funded scientists involved in the LBA-Ecology Project, and to get a feeling for the pace of the day-to-day activities at one of the major LBA field centers in Santarem, Brazil. Williams chose to accomplish his objectives by accompanying Dr. Deering as he cycled through the region on one of his periodic trips to interact with the support staff that operate these sites on a daily basis. Williams was very impressed with what has been accomplished, especially when considering the remoteness of the sites, the difficulty of transporting goods into a foreign country through customs, the harshness of the hot, humid environment, etc. As usual, much of the success of such an undertaking hinges on the quality of the management, and the dedication of the people put in place by management to do the job. Dr. Deering and his team of support personnel, both here and in country, have truly pulled off a minor miracle. They are to be congratulated for their significant accomplishments!

**** Scientifc papers of the Biospheric Sciences Branch (Code 923) well cited in the literature**

The editor of the International Journal of Remote Sensing, Arthur Craknell, published an article in the journal (Int. J. Remote Sensing, 1999, Vol. 20, No. 18, 3485-3491) entitled "Twenty years of publication of the International Journal of Remote Sensing". In this article he discusses the papers published in the journal receiving the highest number of citations. Using the Institute of Scientific Information (ISI) citation index, he looked at individual papers and found an average of 37.1 citations per paper. He then selected the twelve most cited papers for comment.

Biospheric Sciences Branhc personnel (civil servants, associated scientists, and visiting scientists) past and present were represented in the top four and also were authors on the 6th, 8th, 9th, 10th, and 11th papers on the list. Thus of the top twelve cited papers, Code 923 personnel (past or present) were authors on nine of them!

Below is the citation list with Biospheric Sciences Branch personnel, past or present, in bold.

• **310 citations**

P.J. Sellers, Canopy reflectance, photosysnthesis and transpiration, 6, 1335-1372 (1985).

• **233 citations**

C. O. Justice, J. R. G. Townshend, B. N. Holben and **C. J. Tucker**, analysis of the phenology of global vegetation using meteorological satellite data, 6, 1271-1318 (19850.

• **221 citations**

B. N. Holben, Characteristics of maximum-value composite images from temporal AVHRR data, 7, 1417-1434 (1986).

• **161 citations_C. J. Tucker** and **P. J. Sellers**, Satellite remote sensing of primary production, 7, 1395-1416 9 1986).

• **135 citations_D. Tanre**, C. Deroo, P. Duhaut, M. Herman, J. J. Morcrette, J. Perbos and P. Y. Deschamps, Description of a computer code to simulate the satellite signal in the solar spectrum: the 5S code, 11, 659-688 9 1990).

• **91 citations_B. Holben** and R. S. Fraser, Red and near-infrared sensor response to off-nadir viewing 5, 145-160 (1984).

• **87 citations_S. D. Prince**, a model of regional primary production for use with coarse resolutiion ssatellite data, 12, 11313-1330 (1991).

• **76 citations**_Y. J. Kaufman and B. N. Holben, Calibraion of the AVHRR visible and near-IR bands by atmospheric scattering, ocean glint and desert relection, 14, 21-52 (1993).

This citation list acknowledges the groundbreaking research that has been accomplished in Code 923.

**** 17th Plenary Meeting of the CEOS Working Group on Calibration and Validation (WGCV)**

The 17th Meeting of the Working Group on Calibration and Validation (WGCV) of the Committee on Earth Observing Satellites (CEOS) met October 25-27 at NIST in Gaithersburg, MD. The Group formally approved a new Land Product Validation (LPV) Subgroup, the fifth within WGCV, with Jeff Privette as Chair and Jeff Morisette as Deputy Chair (both Code 923). Jim Butler (Code 920.1) described the redesigned Cal/Val Information Server(spsosun.gsfc.nasa.gov/calval) which allows interactive public registration of field sites, instruments and facilities for cal/val. The Group reaffirmed the benefit of the Server and will recommend its continued support to CEOS. In the technical session, Bob Barnes (Code 970.2) presented a well-received review of the SeaWiFS/SIMBIOS calibration activities. Members approved a position paper on traceability in earth observing instruments for presentation to CEOS, as well as a 3-year work plan. Both will be available on the Group's WWW site by November 1 (wgcv.ceos.org). The meeting marked the end of Alan Belward's tenure as Chair. Yves-Louis Desnos of ESA assumed Chairmanship immediately afterward and will host the next Group meeting in Rome in June 2001.